UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA, ET AL.,

Plaintiffs,

v.

AMERICAN AIRLINES GROUP INC. and
JETBLUE AIRWAYS CORPORATION,

Defendants.

Civil Action No. 1:21-cv-11558-LTS

MEMORANDUM IN SUPPORT OF
AMERICAN AIRLINES GROUP INC. AND JETBLUE AIRWAYS CORPORATION'S
***DAUBERT* MOTION AND MOTION IN *LIMINE* CONCERNING**
PLAINTIFFS' EXPERT'S MERGER SIMULATION MODEL

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Pursuant to Federal Rule of Evidence 702, Defendants American Airlines Group Inc. ("American") and JetBlue Airways Corp. ("JetBlue," and collectively with American, "Defendants") respectfully move this Court to preclude Plaintiffs' expert Dr. Nathan H. Miller from offering opinions or testimony that rely on the results of his "merger simulation."

INTRODUCTION

The Northeast Alliance ("NEA") is a contractual collaboration between American and JetBlue. The NEA is the product of a series of agreements that define the collaboration and specify both the breadth and limit of the Defendants' collaboration, including that: (i) Defendants will not coordinate on pricing, (ii) they do not coordinate at all outside the defined Northeast regions, and (iii) they share the gains or losses of the venture based on specific revenue-sharing provisions in the Mutual Growth Incentive Agreement ("MGIA").[1]

The NEA is in no way, shape, or form a merger. Yet, in Plaintiffs' expert reports, and in particular Dr. Miller's reports, the case against the NEA hinges on the erroneous notion that the NEA is effectively a merger—and that the types of predictive tools used to analyze mergers under Section 7 of the Clayton Act are appropriate here. This was telegraphed in the Complaint and briefed by both sides in relation to Defendants' Motion to Dismiss. It has now reached its zenith in Dr. Miller's report, in which he predicts adverse effects from the NEA *exclusively* "using a merger simulation model."[2]

Merger simulations are "economic models designed to quantify the unilateral price effects

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[1] These revenue-sharing agreements are based on the two airlines' capacity shares in the NEA region and are explicitly not based on a fixed share of profits.

[2] *See, e.g.*, Expert Report of Nathan H. Miller, Ph.D. ("Miller Rpt.") (excerpt attached as Ex. A), ¶ 179, n.194 ("I quantify competitive effects using a merger simulation model"), ¶ 223 ("I use standard economic modeling frameworks—upward pricing pressure and a model of effects from the agreement that draws on merger simulation methods"), ¶ 256 ("I present market-level merger simulation results for the NEA nonstop overlap markets").

resulting from [a] merger." U.S. Dep't of Justice and Fed. Trade Comm'n, Horizontal Merger

Guidelines (2010), § 6.1. These models simulate behavior that may occur after a merger when the

two firms merging are particularly "close competitors" to each other. The intuition behind merger

simulations is that previously unattainable price increases become possible because "[s]ome of the

sales lost due to the price rise will merely be diverted to the product of the merger partner." *Id.*

Merger simulations mathematically estimate the effects of that "diversion" phenomenon by

estimating the profit-maximizing prices for the merged firm and its remaining rivals.

In light of their many assumptions, merger simulations are controversial even for mergers.

See Gregory J. Werden, Luke M. Froeb, and David T. Scheffman, A *Daubert* Discipline for Merger

Simulation, 18 ANTITRUST 89, 91 (2004) ("Werden et al.") (attached as Ex. B).[3] But to

Defendants' knowledge there is neither economic literature nor judicial precedent for the use of a

merger simulation in estimating the effects of a *collaboration*, such as the NEA. The idea makes

no sense for any number of reasons, but especially because the critical distinction between a merger

and a collaboration—recognized in the DOJ's own *Collaboration Guidelines*[4]—is that

collaborations do not necessarily end all competition between the parties. "The potential for future

competition between participants in a collaboration *requires antitrust scrutiny different from that*

required for mergers." *Id*. (emphasis added). Yet, indisputably, that potential is not accounted for

in an analysis based on a merger simulation. Indeed, to put the square peg of the NEA into the

round hole of merger simulation, Dr. Miller explicitly assumes that JetBlue and American will

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[3] Gregory J. Werden is the former Senior Economic Counsel at the Antitrust Division of the Department of Justice ("DOJ"); Luke M. Froeb is the former Director of the Bureau of Economics at the Federal Trade Commission ("FTC") and former Assistant Attorney General for Economics at the DOJ; and David T. Scheffman is the former Director of the Bureau of Economics at the FTC.

[4] *See* U.S. Dep't of Justice and Fed. Trade Comm'n, Antitrust Guidelines for Collaborations Among Competitors (2000), § 1.3 ("Collaboration Guidelines").

ignore the terms of the NEA agreements, "behave" as if they split profits in fixed proportions, and in that way replicate the effects of a merger. *See* Ex. A (Miller Rpt.), ¶ 56, n.68.

This assumption raises a clear-cut "fit" issue under the standards for the admissibility of expert testimony laid down by *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 591 (1993), and its progeny. In *Daubert*, the Supreme Court noted that "scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes." *Id*. Expert testimony must therefore "fit" the case, meaning "the testimony proffered in the case is sufficiently tied to the facts of the case" that it will assist the trier of fact. *Id*. Sometimes, as the Court put it in *General Elec. Co. v. Joiner*, "there is simply too great an analytical gap between the data and the opinion proffered." 522 U.S. 136, 146 (1997).

That is exactly what happened here. There is too great an analytical gap between Dr. Miller's merger simulation model and the issues raised by the NEA to receive it into evidence. Dr. Miller's failure to simulate the NEA, but instead a merger that has not happened and never will happen, renders his simulation inadmissible.

Daubert also established a now familiar "standard of evidentiary reliability" for expert testimony. 509 U.S. at 590. Dr. Miller's merger simulation fails that too. First and foremost, *Daubert* emphasizes that a model's predictive powers must be validated by *testing*. *Id.* at 593 ("Ordinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested."). Dr. Miller has not tested his merger simulation's predictions against any empirical benchmarks. If he did, it would fail. Dr. Israel has shown that if Dr. Miller's model had been used to predict the American/US Airways merger, his predictions would have been wildly inaccurate. Dr. Miller's predictions for the NEA are similarly suspect. Dr. Miller predicts average price

increases that are far in excess of those associated with past airline mergers, especially the most recent ones, where the common finding is lower fares on well-travelled routes such as those at the heart of Dr. Miller's harm estimates.   Former DOJ and FTC economists wrote that anyone performing a merger simulation should be "prepared to persuade others" that the model "explains the past well enough to provide useful predictions of the future." Ex. B (Werden et al.), at 90. Dr. Miller cannot do so. For this and other reasons, Dr. Miller's simulation is not reliable and should be excluded from evidence.

Defendants fully appreciate that without Dr. Miller's merger simulation, Plaintiffs have no proof of adverse competitive effects and could not hope to make out a prima facie case under the rule of reason. Granting the motion thus practically ensures a defense judgment, putting the Court in a difficult position. But Rule 702 has no exception for evidence that a plaintiff desperately needs. Dr. Miller's testimony based on the merger simulation should not be received.

STATEMENT OF RELEVANT FACTS

The NEA has been in effect for more than 18 months, since February 2021. Plaintiffs and their experts are armed with over nine months[5] of actual data to evaluate the effects of the NEA. This includes fare data from the second, third, and fourth quarters of 2021 from the U.S. Department of Transportation Domestic Origin and Destination Survey (often referred to as "DB1B" data), a 10% quarterly sample of tickets sold by surveyed airlines and a standard source of fare data in the airline industry. Declaration of Dennis W. Carlton ("Carlton Decl."), ¶ 10. These data for different periods have been used to study the effects of numerous prior airline

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[5] Plaintiffs and their experts had available to them nine months of actual fare data to evaluate the effects of the NEA at the time they served their reports; however, an additional three months of fare data (2022Q1) are now available. Fare data from 2022Q1 are consistent with fare data from 2021Q2 through 2021Q4 in showing no anticompetitive effects from the NEA. *See* Deposition of Dennis W. Carlton ("Carlton Tr.") (excerpt attached as Ex. C) 42:9–43:15.

mergers; Dr. Town discusses that literature in his report. Yet, Dr. Miller and Plaintiffs generally

ignore these data in this case. Instead, Dr. Miller chooses to evaluate the effects of the NEA using

an entirely predictive merger simulation model. *Id.*, ¶¶ 11–12.

There is a lot wrong with how Dr. Miller constructs his model, but for present purposes the

critical feature is how the model purports to incorporate the revenue-sharing terms of the MGIA.

It does not.

The MGIA is the revenue-sharing mechanism underlying the NEA. It "governs how NEA

revenues are shared between American and JetBlue and thus how each firm's profits are affected

by the NEA." Declaration of Mark A. Israel ("Israel Decl."), ¶ 10. Specifically, the MGIA

determines the incremental revenue (*i.e.*, revenue over a baseline amount) generated by the NEA

during a given period and distributes that revenue in accordance with each carrier's contribution

of capacity in the NEA. *Id.*, ¶ 11. It is not possible to model or simulate the NEA without

accounting for how the MGIA affects incentives and behavior. *Id.*, ¶ 10. Yet, buried in a footnote

in Dr. Miller's report is the following:

> I assume that as a mechanical matter, the Defendants jointly set
> capacity and then share revenues according to the dynamic revenue-
> sharing formula in the NEA, but *behave* as though they share *profits*
> according to a *static* formula based on their pre-NEA capacities—
> that is, as though profits are split according to fixed proportions.

Ex. A (Miller Rpt.), ¶ 56, n.68 (emphasis in original).

That remarkable statement means that Dr. Miller chose not to model the NEA and MGIA

on their terms, but rather to assume "behavior" (sharing *profits* according to a *static* formula) that

he argues replicates the post-merger incentives of newly merged firms well enough to use a merger

simulation. His argument for why ignoring the MGIA terms is acceptable comes down to the

equally remarkable claim that rational firms would not choose to do business under the actual

terms of the MGIA because the capacity-expansion incentives (which he acknowledges) would be

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abused. Deposition of Dr. Nathan H. Miller ("Miller Tr.") (excerpt attached as Ex. D) 141:6–12.

Thus, Dr. Miller constructed a merger simulation model that assumes American and JetBlue

"behave" contrary to the MGIA's terms. This wholly counterfactual assumption purportedly

justifies his use of a merger simulation in the first instance, setting the stage for his wildly

implausible estimates of harms to consumers.

Dr. Miller's projected NEA price increases are indeed wildly implausible. He has done

nothing to put them to any kind of sanity or reality check, even though they vastly exceed anything

observed in the large body of literature studying retrospectively fare effects of recent airline

mergers. Israel Decl., ¶ 13. Articles cited by Dr. Miller and Dr. Town find that actual airline

mergers tend to *lower* airfares on nonstop overlap routes (*i.e.*, routes where the merging parties

competed on a nonstop basis). Dr. Miller's own retrospective of the Delta-Northwest merger is

fully in accord with that statement. Adhiti Mehta and Nathan H. Miller, *Choosing Appropriate*

Control Groups in Merger Evaluations, More Pros and Cons of Merger Control

(Konkurrensverket, 2012) (attached as Ex. E). Yet, here, Dr. Miller intends to offer merger

simulation predictions of an average 16.7% price increase on NEA nonstop overlap routes, an

average 28.7% price increase on NEA nonstop overlap routes with a Boston endpoint, and

"market-level simulation results" for particular routes in the 20–90% range. Ex. A (Miller Rpt.),

Ex. 25. Nothing like this has ever been seen after any real airline merger of the last 15 years,

including American/US Airways. Dr. Miller gets these results because his model is deeply flawed.

There is no chance a Court would allow Dr. Miller's testimony to go to a jury, were this a

jury trial. The fit and reliability issues with Dr. Miller's merger simulation are severe enough that

it must be excluded from this bench trial as well.

ARGUMENT

I.   COURTS CANNOT ACCEPT ECONOMIC MODELS THAT DO NOT MEET THE *DAUBERT* STANDARDS OF FIT AND RELIABILITY

Federal Rule of Evidence 702 and the Supreme Court's decision in *Daubert* govern the admissibility of expert evidence. Under Rule 702, an expert witness may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case. *See* Fed. R. Evid. 702; *Samaan v. St. Joseph Hosp.*, 670 F.3d 21, 31 (1st Cir. 2012).

In *Daubert*, the Supreme Court held that Federal Rule of Evidence 702 requires the court to actively screen evidence proffered by expert witnesses and to exclude unreliable and unsupported evidence. *Daubert*, 509 U.S. at 597. Fundamentally, under *Daubert*, Rule 702 "requires district courts to act as gatekeepers, ensuring that an expert's proffered testimony 'both rests on a reliable foundation and is relevant to the task at hand.'" *Samaan*, 670 F.3d at 31 (quoting *Daubert*, 509 U.S. at 597). Courts have held the relevance and reliability requirements to be "separate and distinct." *Samaan*, 670 F.3d at 31. The party offering the expert must prove each of these requirements by a preponderance of the evidence. *Daubert*, 509 U.S. at 592 n.10. While the *Daubert* standards are relaxed in a bench trial, the court may still exclude unreliable testimony. *See Seaboard Lumber Co. v. United States*, 308 F.3d 1283, 1302 (Fed. Cir. 2002) ("While these concerns [of misleading the jury] are of lesser import in a bench trial, where no screening of the factfinder can take place, the *Daubert* standards of relevance and reliability for scientific evidence must nevertheless be met.").

The first requirement is that of relevance or "fit" between the expert's methodology and

the actual facts and demands a valid scientific connection to the pertinent inquiry for admissibility. *Daubert*, 509 U.S. at 591–92. The inquiry asks whether the "'expert testimony proffered in the case is sufficiently tied to the facts of the case that it will aid the [trier of fact] in resolving a factual dispute.'" *Id*. at 591 (*quoting United States v. Downing*, 753 F.2d 1224, 1242 (3rd Cir. 1985)); *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 154 (1999).

The second requirement is reliability of expert testimony. Even if an economic model "fits" the overall structure of competition in an industry, its assumptions must be carefully examined and calibrated to correspond with observed market realities—it must be reliable. The Supreme Court in *Daubert* identified several factors the court may consider when making its reliability determination, including: (i) whether the technique or theory can be or has been tested, (ii) whether the technique or theory has been subject to peer review and publication, (iii) the known or potential error rate of the technique or theory when applied, (iv) the existence and maintenance of standards and controls, and (v) whether the technique or theory has been generally accepted in the scientific community. *Daubert*, 509 U.S. at 593–94; *see also Samaan*, 670 F.3d at 31–32.

Drs. Werden et al. lay out a comprehensive framework for evaluating the "fit" and reliability of merger simulation models. The merger simulation results must be treated with healthy skepticism because merger simulation models, by construction, *always* predict a merger will increase prices. *Daubert*'s "fit" requirement demands "consistency between the factual setting of the industry and the structural models that can be employed in a simulation." Ex. B (Werden et al.), at 90. For reliability, "it is a serious mistake to use the methodology to predict the future without first making sure that it explains the past." *Id.* "Anyone performing a merger simulation ultimately should be convinced, and prepared to persuade others, that the oligopoly model employed explains the past well enough to provide useful predictions of the future." *Id.*

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II.   DR. MILLER'S MERGER SIMULATION MODEL DOES NOT "FIT" THE NEA BECAUSE THE NEA IS NOT A MERGER

Dr. Miller's merger simulation first fails the "fit" prong of *Daubert* because it does not

simulate the NEA, a *collaboration* defined and governed by a set of contracts, but instead simulates

a *merger* or merger-like arrangement that JetBlue and American do not have.

The many ways in which the NEA is not a merger are obvious. As Dr. Miller testified, the

NEA involves, among other things: (i) no absorption of one brand into another, *see* Ex. D (Miller

Tr.) 138:3-8; (ii) no imposition of one's business strategy to another, *id.* 138:9-14; (iii) no pricing

coordination, *id.* 138:18-22; (iv) no major or permanent transfer of assets, *id.* 44:8-12, 138:15-17;

(v) no aggregate capacity coordination, *id.* 138:23-139:18; and (vi) no loss of a player on the

competitive field. *Id.* 43:20-24. The more limited collaboration that occurs under the NEA is

common in joint ventures. *See Med. Ctr. at Elizabeth Place LLC v. Premier Health Partners*, No.

3:12-CV-26, 2012 WL 3776444, at *5 n.11 (S.D. Ohio Aug. 30, 2012) (stating that "[t]he existence

of shared functions and joint management, along with the pooling of capital and the consolidation

of revenues is the very definition of a joint venture"); *see also Texaco Inc. v. Dagher*, 547 U.S. 1,

3–4 (2006) (noting that competitors can create a joint venture by agreeing to coordinate their

operations and "pool their resources and share the risks of and profits from [the venture's]

activities"). Unlike a merger, the NEA preserves the Defendants' independent ability to compete

with one another. *See* Ex. D (Miller Tr.) 43:20–24 ("Q: Under the NEA agreements, do American

and JetBlue retain the ability to compete independent of each other. A: Yes, they retain the ability

to compete independent of each other.").[6]

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[6] The NEA fails to satisfy two of the four elements ordinarily required under the DOJ's own
Collaboration Guidelines for agencies to treat a competitor collaboration as a horizontal merger.
See Collaboration Guidelines, § 1.3 ("The Agencies treat a competitor collaboration as a horizontal
merger in a relevant market . . . when: (a) the participants are competitors in that relevant market;

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None of these clear-cut departures from what merger simulations simulate make their way into Dr. Miller's model. Israel Decl., ¶ 9. The model literally assigns no significance to them. With respect to the nonstop overlap markets that make up 92% of the predicted harm, the model predicts the behaviors that define mergers that have "unilateral effects," *i.e.*, each firm calculates a new, higher profit-maximizing price that accounts for its partner recapturing some lost sales.

The worst of it is Dr. Miller's choice to ignore the NEA parties' revenue-sharing agreement. Dr. Miller's primary justification for using a merger simulation is his argument that "a profit-sharing agreement typically creates similar incentives to raise prices" as a merger because "it is the profit-sharing feature of a horizontal merger—not the coordination or control—that creates such an incentive." Ex. A (Miller Rpt.), ¶ 32. That is not true because *control* matters as well, but put that aside for the moment. The fact is that *there is no profit sharing in the NEA*. Israel Decl., ¶ 11. *Revenues* are shared according to a specific formula that creates unilateral incentives for JetBlue and American to increase capacity. *Id.*, ¶ 10; Ex. A (Miller Rpt.), ¶¶ 24, 45–46. Even Dr. Miller acknowledges these unilateral incentives. Ex. A (Miller Rpt.), ¶ 46. So, in the aforementioned footnote 68, Dr. Miller changes the facts to fit his theory. He claims that while the parties may go through the motions of honoring the MGIA terms, they will "*behave* as though they share *profits* according to a *static* formula based on their pre-NEA capacities," justifying the merger simulation. Ex. A (Miller Rpt.), ¶ 56, n.68; *see* Ex. D (Miller Tr.) 186:13– 20 ("Q: So what you're saying, then, is that they go through the motions of acting consistent with the terms of the MGIA but behave as though at all times JetBlue will get 57 percent of the revenues

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(b) the formation of the collaboration involves an efficiency-enhancing integration of economic activity in the relevant market; (c) the integration eliminates all competition among the participants in the relevant market; and (d) the collaboration does not terminate within a sufficient limited period by its own specific and express terms.").

and American will get 43 percent. A: In the pricing . . . decision, yes").

There could not be a more pronounced and extreme "fit" issue. When expert testimony has been excluded in antitrust cases based on "fit," the departures between the assumed facts and the actual facts have been far less than here. For example, in *Concord Boat Corporation v. Brunswick Corporation*, the Eighth Circuit held that an economic damages model was inadmissible because it "was not grounded in the economic reality of the stern drive market," citing, among other things, assumed market shares deviating from actual shares and "fail[ure] to account for market events that both sides agreed were not related to any anticompetitive conduct." 207 F.3d 1039, 1056 (8th Cir. 2000). That said, at least that model estimated the effects of the conduct at issue, not some made-up alternative version of the conduct. Similarly, in *Heary Brothers Lightning Protection Company. v. Lightning Protection Institute*, the court excluded an economic model largely because of an assumption about the existing market shares in 1993 that it said was unreliable. 287 F. Supp. 2d 1038, 1066 (D. Ariz. 2003), *aff'd in relevant part*, 262 F. App'x 815 (9th Cir. 2008) ("[t]he failure of the initial market share assumption renders the rest of the calculations unreliable"). The court also found that the demand system in the expert's model "d[id] not 'fit' the reality of the [] market" in part because the "model assume[d] that firms choose the production quantity and then take whatever market price results," whereas it was undisputed that the firms "compete[d] on the price, not quantity." *Id.* at 1067. But, at least the expert was modeling the behavior at issue, not something else. It is elementary that "any model supporting a 'plaintiff's damages case must be consistent with its liability case.'" *Comcast Corp. v. Behrend*, 569 U.S. 27, 35 (2013) (citing ABA Section of Antitrust Law, Proving Antitrust Damages: Legal and Economic Issues 57, 62 (2d ed. 2010)). The liability case here has to be based on what the NEA is, a joint venture with particular terms, and therefore Dr. Miller's model must be as well.

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Cf. Rothery Storage & Van Co. v. Atlas Van Lines, Inc., 792 F.2d 210, 220–21 (D.C. Cir. 1986) (explaining that merger guidelines were developed for and "apply to mergers between firms that ordinarily have no internal competition[,] . . . [not] firms that are merely limiting internal competition and are not merging"). A model that fits the facts of this case so poorly should not be received into evidence. It in no way "incorporate[s] all aspects of the economic reality" of the NEA. *Brunswick*, 207 F.3d at 1057.

Plaintiffs are sure to answer that it is Dr. Miller's opinion as an "expert" that, notwithstanding the terms of the NEA (or perhaps by some tortured interpretation of them), JetBlue and American will *"behave"* as if merged. That presents a merits issue, not a *Daubert* "fit" issue. But Dr. Miller's opinions about how JetBlue and American will behave are themselves inadmissible, and therefore cannot—in an obviously circular manner—provide the foundation for ignoring the NEA's actual terms. An economic expert has no specialized skill within the meaning of Rule 702 to intuit the expectations, motive, or understanding of a corporation when making a business decision. Testimony of that kind violates the fundamental rule that "[a] party's intent or state of mind is not the proper subject of expert testimony." *United States ex rel. Bawduniak v. Biogen Idec, Inc.*, No. 1:12-CV-10601-IT, 2022 WL 2662678, at *3 (D. Mass. July 8, 2022) (citation and quotation omitted); *Lippe v. Bairnco Corp.*, 288 B.R. 678, 688 (S.D.N.Y. 2003) (precluding expert from testifying as to "defendants' 'real purpose,' their true motivation, in engaging" in a transaction). And while Dr. Miller could have checked whether American and JetBlue were "behaving" as his model requires, he chose to ignore the period when the NEA has been in effect. The "fit" requirement would have no meaning at all if an expert could simply opine that firms will behave as his model assumes.

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Dr. Miller's testimony on this subject is inadmissible because his predicted harms do not model the NEA, but instead the hypothesized behavior of a JetBlue/American merger.

III.   DR. MILLER'S MODEL DOES NOT "FIT" THE NEA BECAUSE DR. MILLER INAPPROPRIATELY ASSUMES "BERTRAND" COMPETITION

Dr. Miller's merger simulation incorrectly models competition in the airline industry, which also makes it inadmissible under *Daubert*. *Heary Bros.*, 287 F. Supp. 2d at 1067 (expert's model "d[id] not 'fit' the reality of the [] market" in part because the "model assumes that firms choose the production quantity and then take whatever market price results," whereas it was undisputed that the firms "compete on the price, not quantity").

All merger simulations and comparable economic models incorporate what economists call a model of oligopoly behavior, *i.e.*, how firms in an industry interact with one another strategically when there are few rivals. There are two leading models that differ largely based on whether firms are assumed to make an initial choice to set (a) *quantity* (capacity) or (b) *price* (fares). In "Bertrand" competition, firms initially chose a price at which to sell their products and market demand at these prices then determines quantity supplied. In "Cournot" competition, firms initially chose a quantity to produce, permitting laws of supply and demand to determine market prices. Dr. Miller's merger simulation assumes Bertrand competition. *See* Ex. A (Miller Rpt.), ¶ 246 ("In my simulation model, each airline takes consumer preferences, costs, and the other airlines' prices as given and sets the price for each of its products that maximizes its total profit. This is often referred to as 'Nash-Bertrand equilibrium.'").

It is generally recognized, however, that the airline industry is a textbook example of Cournot competition where firms first set quantities in the form of the capacity allocated to a route (or to the industry), letting the interaction of demand with those capacity levels determine pricing. Israel Decl., ¶ 12. Plaintiffs' other expert, Dr. Robert Town, explains this:

> Airlines publish flight schedules, including the number of flights for each route and the number of available seats on each flight, for a certain time well ahead of the period of the scheduled flights. The flight schedules make a certain amount of capacity available for sale, and airlines use sophisticated pricing practices, known as "yield management," to maximize the amount of revenue from the sale of tickets for a given capacity.

Expert Report of Dr. Robert J. Town, Ph.D. (excerpt attached as Ex. F), ¶ 43.

The economic literature on the airline industry is in accord. Indeed, while Dr. Miller purports to rely on the economic literature to support his model, the primary article Dr. Miller relies on actually finds that merger simulations based on Bertrand competition "do not generally provide an accurate forecast" for the airline industry. *See* Craig Peters, Evaluating the Performance of Merger Simulation: Evidence from the U.S. Airline Industry, 49 J. L. & ECON. 627 (2006) (attached as Ex. G). And according to a publication cited by Dr. Town, "airline conduct is generally 'consistent with the Cournot solution' or 'reasonably close to Cournot behavior.'" Robert Hazel, Airline Capacity Discipline in the U.S. Domestic Market, 66 J. AIR TRANSPORT MGMT. 78, 78 (2018) (attached as Ex. H). Having the wrong assumption for how firms compete in the airline industry, Dr. Miller's model does not fit the facts.

IV.   DR. MILLER'S MERGER SIMULATION SHOULD BE EXCLUDED BECAUSE IT YIELDS UNRELIABLE RESULTS

Even if the Court finds Dr. Miller's merger simulation is an adequate "fit" for simulating the effects of the NEA, *quod non*, the model suffers from large deviations from measured price effects of prior mergers, absurdly large differences between predicted and actual post-NEA fare changes, and implausibly negative marginal costs, leading to patently absurd results and rendering the model inadmissible. *U.S. ex rel. Loughren v. UnumProvident Corp.*, 604 F. Supp. 2d 259, 269 (D. Mass. 2009) (excluding expert's testimony where the methodology was "flawed," "unreliable," and used a "technique [] susceptible to manipulation and significant error"); *see generally* 2A P.

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Areeda & H. Hovenkamp, Antitrust Law ¶ 399c, p. 447 (3d ed. 2006) ("Damages estimates in antitrust cases hinge on careful statistical analysis, reasonable assumptions, reliable data, and the robustness of the results. If any of these areas are circumspect, then the analysis could provide faulty conclusions as to the existence or the amount of damages.").

A.   Dr. Miller's Model Predicts Price Increases That Are Impossible To Square With Measured Price Effects Of Prior Mergers

Before using a simulation model, it is paramount to ensure the model effectively explains past market outcomes: "What is required is that a standard model of oligopoly interaction explain past outcomes of the competitive process reasonably well," and anyone performing a simulation "ultimately should be convinced, and prepared to persuade others, that the oligopoly model employed explains the past well enough to provide useful predictions of the future." Ex. B (Werden et al.), at 90; *In re LIBOR-Based Fin. Instruments Antitrust Litig.*, 299 F. Supp. 3d 430, 468, 479–81 (S.D.N.Y. 2018) (finding expert's testimony inadmissible where "[r]obustness testing and sensitivity testing [] produce[d] contradictory or otherwise implausible results").

The airline industry is awash with data that economists can and have used to study the price and output effects of mergers, alliances, and other practices. Plaintiffs' expert reports are littered with citations to economic literature studying the mergers of Delta and Northwest, United and Continental, American and US Airways, and more. The findings are overwhelmingly consistent: Recent U.S. airline mergers have not led to any meaningful fare increases on large nonstop overlap routes (the very routes on which Dr. Miller calculates the overwhelming majority of harm). In particular, the literature studying the most recent U.S. merger of legacy carriers—American/US Airways—consistently finds decreases in fares on nonstop overlap routes.[7] Indeed, as Plaintiffs'

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[7] *See*, *e.g.*, Carlton et al., Are Legacy Airline Mergers Pro- or Anti-Competitive? Evidence From Recent U.S. Airline Mergers, 62 INT'L J. INDUS. ORG. 58, 60 (2019) (finding that "across all three

other expert Dr. Town concluded, any quibbling amongst economists relates almost exclusively to "low single digit impacts on price (one way or another)." Expert Reply Report of Dr. Robert J. Town, Ph.D. (excerpt attached as Ex. L), ¶ 111.

Dr. Miller's merger simulation, however, predicted an average 16.7% price increase on NEA nonstop overlap routes, an average 28.7% price increase on NEA nonstop overlap routes with a Boston endpoint, and "market-level simulation results" for particular routes in the 20–90% range. These predicted fare increases diverge wildly from what the published economic literature finds are the fare effects of even a true airline merger.

Despite the obvious need to test whether the model employed "explains the past well enough to provide useful predictions of the future," Ex. B (Werden et al.), at 90, Dr. Miller chose not to conduct such an analysis. Dr. Miller testified he has not done anything to determine whether his simulation's predictions are "in the range of price elevation that has been found in previous airline merger retrospectives." Ex. D (Miller Tr.), 110:23-111:7. As a result, Dr. Miller offers as Plaintiffs' primary evidence of harm untested predicted fare increases that strain credulity.

Dr. Miller tries to defend his implausible fare effects by stating they demonstrate the "impetus to raise price caused by the NEA." Expert Reply Report of Dr. Nathan H. Miller ("Miller Reply Rpt.") (excerpt attached as Ex. M), ¶ 124. Dr. Miller never explains what "impetus" this means, but if the suggestion is that they should not be taken literally or as a general estimate, that

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mergers combined, nonstop overlap routes . . . experienced statistically significant output increases and statistically insignificant nominal fare decreases relative to non-overlap routes") (attached as Ex. I); Huubinh B. Le, An Ex Post Analysis of the US Airways/American Airlines Merger, 11 REV. OF ECON. ANALYSIS 383, 397 (2019) (finding that "in nonstop two-hub markets in which the merging airlines previously competed, the effects have been procompetitive") (attached as Ex. J); Somnath Das, Effect of Merger on Market Price and Product Quality: American and US Airways, 55 REV. OF INDUS. ORG. 339, 361 (2019) ("I find that the merger had a significant negative effect on the price in the larger markets") (attached as Ex. K).

is contradicted by how he describes his findings: "Based on 2019 data consumers in the NEA nonstop overlap markets *would have experienced* an annual overcharge of around $640 million." Ex. A (Miller Rpt.), ¶ 253 (emphasis added). To repeat, these predictions are Plaintiffs' only quantification of likely adverse effects of the NEA, and they are not merely intended to be directional.

Dr. Miller also tries to defend his predictions with what he claims are "historical" data points, but which are in fact anecdotes cherry-picked by Plaintiffs to highlight the largest fare effects that can be traced to JetBlue entry or exit on a route.[8] *See id.* Ex. 20. *Daubert*, however, requires proffered expert testimony to have a proper foundation in the scientific method, not merely "subjective belief or unsupported speculation." 509 U.S. at 589–90. Dr. Miller's predictions are regularly above—often far above—the range that appears in published airline merger retrospectives. And there is no literature saying that economists can or should test their predictions through anecdotes. They must be validated with the same rigor that would be expected outside litigation. *Kumho Tire Co.*, 526 U.S. at 152.

Because Dr. Miller's predicted price effects are not founded in reality, and in fact fall outside any reasonable range of likely fare effects that the literature suggest one might expect to see from a *merger*, they are unreliable, and his testimony is inadmissible.

B.   Dr. Miller's Predicted Price Effects Are Contradicted by Actual Fare Changes Post-NEA

Dr. Miller most certainly has not validated his predictions against what has actually happened since the NEA went into effect almost 18 months ago. To the contrary, actual post-NEA

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[8] It is worth noting two additional points: (1) Dr. Miller's simulation model does not estimate the effect of JetBlue entry or exit and (2) JetBlue will remain on all of the routes that Dr. Miller predicts large price effects. These cherry-picked anecdotes noted by Plaintiffs are thus irrelevant.

fare changes contradict Dr. Miller's predicted fare increases, providing yet another indication that Dr. Miller's predictions are unreliable. *Bricklayers & Trowel Trades Int'l Pension Fund v. Credit Suisse First Bos.*, 853 F. Supp. 2d 181 (D. Mass 2012), *aff'd sub nom.*, 752 F.3d 82 (1st Cir. 2014) (excluding expert's study as unreliable given "the pervasiveness of . . . methodological errors and the lack of congruity between his theory and data").

Boston Routes: Dr. Miller predicts weighted average fare increases across the 11 Boston nonstop overlap routes to be 28.7%, ranging from 7.1% (Boston – Chicago) to 90.1% (Boston – Charlotte). Carlton Decl., ¶ 18. The actual change in average fares between the second, third, and fourth quarters of 2019 and 2021 are shown below (*id.*):

Predicted and Actual Fare Changes on Boston Nonstop Overlaps

Route	2019 Passengers	Dr. Miller Predicted	Actual 2019 vs 2021		
			Q2	Q3	Q4
Boston (BOS) - Washington National (DCA)	440,430	54.7%	-16.2%	2.6%	-22.2%
Boston (BOS) - Charlotte (CLT)	170,100	90.1%	-0.3%	-1.6%	-10.0%
Boston (BOS) - Philadelphia (PHL)	296,210	44.0%	11.6%	3.8%	-6.4%
Boston (BOS) - Los Angeles (BUR/ONT/LAX/SNA/LGB)	382,050	10.9%	2.1%	3.8%	13.0%
Boston (BOS) - Miami (MIA/FLL)	368,380	17.7%	-36.2%	-25.9%	-12.2%
Boston (BOS) - Phoenix (AZA/PHX)	140,690	32.1%	-11.3%	2.2%	7.3%
Boston (BOS) - Dallas/Fort Worth (DFW/DAL)	252,530	21.7%	2.5%	11.1%	-10.9%
Boston (BOS) - NYC (JFK/LGA)	298,590	12.3%	1.1%	-4.6%	-42.4%
Boston (BOS) - Chicago (MDW/ORD)	496,420	7.1%	-3.1%	14.0%	1.8%
Boston (BOS) - Rochester (ROC)	17,910	84.9%	31.0%	25.4%	-6.5%
Boston (BOS) - Syracuse (SYR)	8,540	60.1%	97.6%	69.8%	23.6%
Weighted Average		*28.7%*	*-6.0%*	*1.3%*	*-9.2%*
Weighted Prediction Error			*34.6%*	*27.4%*	*37.8%*

Sources: Dr. Miller's backup materials; DOT DB1B data for 2021.

JFK/LGA Routes:[9] Dr. Miller predicts weighted average fare increases across the 18 JFK/LGA nonstop overlap routes to be 4.8%. *Id.* ¶ 19. The actual change in average fares between the second, third, and fourth quarters of 2019 and 2021 are shown below (*id.*):

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[9] Defendants continue to dispute Plaintiffs' market definition, which carves out of all New York markets all domestic flights to and from Newark. *See* Memorandum in Support of Defendants'

Predicted and Actual Fare Changes on JFK/LGA Nonstop Overlaps

Route	2019 Passengers	Dr. Miller Predicted	Actual 2019 vs 2021		
			Q2	Q3	Q4
NYC (JFK/LGA) - Miami (MIA/FLL)	1,099,720	10.2%	-34.9%	-24.9%	-24.1%
NYC (JFK/LGA) - Los Angeles (BUR/ONT/LAX/SNA/LGB)	989,540	4.7%	-11.6%	-3.8%	-11.1%
Boston (BOS) - NYC (JFK/LGA)	298,590	12.3%	1.1%	-4.6%	-42.4%
NYC (JFK/LGA) - San Francisco (SJC/OAK/SFO)	563,420	2.4%	-11.1%	-0.5%	-17.0%
NYC (JFK/LGA) - Orlando (MCO)	577,130	4.0%	-29.0%	-12.4%	-20.2%
NYC (JFK/LGA) - Phoenix (AZA/PHX)	184,100	7.3%	-8.7%	-2.3%	-5.5%
NYC (JFK/LGA) - Las Vegas (LAS)	259,130	3.3%	-15.5%	3.5%	3.0%
NYC (JFK/LGA) - Raleigh/Durham (RDU)	217,500	8.0%	-6.3%	7.5%	-14.7%
NYC (JFK/LGA) - Austin (AUS)	162,860	6.1%	1.8%	1.5%	-17.2%
NYC (JFK/LGA) - Chicago (MDW/ORD)	1,001,620	1.1%	7.8%	23.1%	-18.0%
NYC (JFK/LGA) - San Diego (SAN)	158,610	2.2%	-10.0%	-5.7%	-11.5%
NYC (JFK/LGA) - Atlanta (ATL)	685,340	0.9%	-13.5%	2.0%	-14.3%
NYC (JFK/LGA) - West Palm Beach (PBI)	269,920	1.9%	-6.2%	7.3%	-10.1%
NYC (JFK/LGA) - Martha's Vineyard (MVY)	7,900	48.8%	-23.9%	-23.5%	-16.0%
NYC (JFK/LGA) - Charleston (CHS)	114,140	4.6%	1.2%	-6.1%	-16.7%
NYC (JFK/LGA) - Nantucket (ACK)	13,520	24.3%	-15.2%	-27.1%	-28.5%
NYC (JFK/LGA) - Portland, ME (PWM)	35,800	6.0%	-4.2%	-12.8%	-10.5%
NYC (JFK/LGA) - Savannah (SAV)	89,690	1.7%	-9.6%	3.6%	-5.4%
Weighted Average		*4.8%*	*-12.7%*	*-2.0%*	*-16.8%*
Weighted Prediction Error			*17.5%*	*6.8%*	*21.6%*

Sources: Dr. Miller's backup materials; DOT DB1B data for 2021.

The court should exclude Dr. Miller's merger simulation results as unreliable as they fail to come within a reasonable range in terms of both the direction and scale of actual, observed post-NEA changes in fares across both Boston and JFK/LGA nonstop overlap routes.

C.   Dr. Miller's Model Estimates Implausible Negative Marginal Costs

Marginal cost is the cost of producing one additional unit of a product or service. Marginal cost estimates play a critical role in any merger simulation. They are used to estimate the merged firm's profit-maximizing price—*i.e.*, to determine how much the merged firm can, and should, raise prices. As Drs. Werden et al. explain, "[i]f it appears that the inferred marginal cost for any merging product differs substantially from the likely true value, the [] model does not explain pre-merger pricing and therefore cannot reliably predict post-merger prices." Ex. B (Werden et al.),

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Motion to Dismiss, Dkt. No. 68, No. 1:21-cv-11558, *United States v. American Airlines Grp., Inc. v. JetBlue Airways Corp.* (D. Mass. Nov. 22, 2021), at 31–35.

at 91; *see also* Ex. C (Carlton Tr.) 146:11–13 ("if you have these negative marginal costs, when you simulate the model assuming a merger, you get ridiculous price effects"); Carlton Decl. ¶ 14.

Dr. Miller estimates route-specific marginal costs for each of American and JetBlue inferentially. That is, he observes prices and shares in 2019—the pre-NEA period—and uses that data to infer the marginal cost for each route-specific "product" under an assumption that each carrier sets its prices at the profit-maximizing level. His estimates are presented in summary form as a distribution of percentiles. Ex. A (Miller Rpt.), Ex. 43. Many are *negative,* implying that the airline *saves money for each additional customer it serves*. That cannot be. "[A] negative marginal cost clearly is implausible," and therefore a model that implies negative marginal costs is unreliable. Ex. B (Werden et al.), at 91; Carlton Decl., ¶ 14.

This is no small matter. Some of Dr. Miller's largest predicted price increases correspond to the most negative marginal costs. *See* Ex. C (Carlton Tr.) 165:3–9 ("If you look at the specifics of where [Dr. Miller] is postulating large fare increases, oftentimes they correspond to those places where marginal costs in his model are . . . highly negative. That should make you suspicious of the credibility of his results"); Carlton Decl., ¶ 15. Because Dr. Miller estimates implausible marginal costs that yield price effects that cannot be squared with either economics or the evidentiary record, his marginal cost estimates—and the related predicted fare effects—are unreliable, and his testimony should be excluded.

CONCLUSION

For the reasons set forth above, Defendants respectfully request that the Court exclude the portions of Dr. Miller's opinions and testimony that rely on the results of his merger simulation.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that the foregoing document, which was filed with the Court through the CM/ECF system, will be sent electronically to all registered participants as identified on the Notice of Electronic Filing.

/s/ Daniel M. Wall
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